California Energy Commission awards biogas project $5 million

By Katie Fletcher | January 09, 2015

In mid-December, Colony Energy Partners Tulare LLC was awarded a $5 million grant from the California Energy Commission to construct an estimated $25 to $30 million biogas project in Tulare, California, that will produce 2.8 million diesel gallon equivalents of biogas each year, displacing diesel fuel used by trucks in the San Joaquin Valley. The grant was one of two approved through the Alternative and Renewable Fuel and Vehicle Technology Program, which supports the development and use of alternative and renewable fuel projects and advanced transportation technologies to help meet the state's goals for reducing greenhouse gas emissions (GHG) and petroleum dependence in the transportation sector.

Matt Schmitt, vice president of project development at Colony Energy Partners, said it's difficult to obtain debt financing for projects like this, so grants help. "It certainly helps with the heavy capital costs associated with these types of facilities, and it's pretty tough to pencil out without grants."

The grant will help purchase the main pieces of equipment for the plant, such as a gas conditioning skid and digester equipment for what is referred to as the Endeavor facility.

The project's high-solid anaerobic digester design can process locally collected dairy manure, food and agricultural processing residuals, restaurant and cafeteria food scraps, restaurant grease trap residuals, and organic municipal solid waste. "We located the plant specifically in a location that has access to a lot of organic waste, we have the highest concentrated area of the dairy industry in the world, so we have plenty of manure," Schmitt said.

Schmitt adds that manure is low-energy, but the project is also located where there are hundreds of food processing plants. "We're in the food processing belt, the largest cluster of food processing in the world," he said.

In addition to food and agricultural processing facilities, the project has the opportunity to use green waste and source-separated organic waste from the municipal market. "We are working on all of those angles," Schmitt said. "We have agreements in place with some suppliers, and we don't see a major issue in having feedstock."

The project is permitted for up to 500 tons of waste per day, with a solids content up to 40 percent. The digested waste will produce approximately more than 1.5 million standard cubic feet per day of biomethane. This will produce in the neighborhood of 1,200 MMBtu a day.

Although the project has an opportune location, Schmitt said obtaining feedstock in the waste business can be difficult because suppliers don't sign long-term contracts. "That just compounds the difficulty in obtaining debt financing," Schmitt said.

The biogas produced will be upgraded to compressed natural gas (CNG). "The highest-value market use is CNG," Schmitt said.

Gas conditioning equipment, provided from Greenlane Biogas, will produce pipeline-grade renewable biomethane. The pipeline constructed for the project will have an interconnection point with a nearby, existing Southern California Gas Co. natural gas pipeline for insertion directly into the natural gas grid. CNG will be accessed with refueling stations for transportation use. The aim is to provide fuel for up to 400 natural gas-powered, heavy-duty vehicles. According to the grant request form, the facility has the objective to reduce transportation GHG emissions by approximately 41,850 metric tons per year to help meet the state's policies.

Additionally, the facility will integrate combined heat and power (CHP) cogeneration modules, a portion of which can run on the biogas to generate electric and thermal energy for the facility. Any excess thermal energy will be exported to heat the adjacent City of Tulare Industrial Wastewater Treatment Plant's digester. The CHP modules produce greater than or equal to 1,200 kW of electricity and greater than or equal to 1,315 kW of thermal energy, as indicated in the grant request form.

Biogas projects in California are difficult due to strict air quality regulations, and in order to receive grant money biogas endeavors need to show more than project concept. "You have to really be shovel-ready, you have to have the permits, show an advanced stage of development, not just concept," Schmitt said. "This type of facility really is the bullseye for several agencies in California."

The project is said to provide at least 10 full-time jobs, and 20 to 30 indirectly. Construction is slated to begin this quarter, and Schmitt said that puts the project online around second quarter 2016.